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EXAMINER	
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,552	YAKURA ET AL.	
	Examiner	Art Unit	
	Shih-wen Hsieh	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities:

Line 8, please change "the peripheral face" into "a peripheral face" to correct a minor lack of antecedent basis problem.

Line 16, please change "the operations for forming images" into "operations for forming images" to correct a minor lack of antecedent basis problem.

Claims 4, 7, etc. have the same problems, please correct accordingly.

All method claims (starting from claim 25) lacks of steps, such as the language of "the method comprising steps of", and then each step beginning with such as :"performing", "opening", etc., please refer to MPEP 35 U.S.C 112 specification sixth paragraph.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 6 of U.S. Patent No. 6,637,856 B2 ('856) in view of Martinson et al. (US Pat. No. 5,793,388). The features of a capping device associated with a cylindrical cleaner used to clean a print head when the capping device opens or closes the head in the instant application are the same as those in patent ('856), and the cleaning is performed after a predetermined amount of papers have been printed is taught by Martinson et al. Following is a table of comparison between claims of the instant application and patent ('856) to show their similarities:

10/618,552	**6,637,856 B2**
1. An image formation apparatus having a print head with an ink discharge face where ink discharge orifices are provided, whereby ink is discharged from said ink discharge orifices so as to form an image on a recording medium, said image formation apparatus comprising: a cleaning member cylindrically formed of a material having elasticity; moving means for moving both the peripheral face of said cleaning member and the ink discharge face of said print head relative one to another, with both in contact one with another; and driving	1. An inkjet head comprising: an ink cartridge for holding ink of one color or of a plurality of colors therein; a print head including an ink discharge surface including an ink discharge hole for discharging ink supplied from the ink cartridge; a head cap, which moves relative to and is removably mounted to the print head, for protecting the ink discharge surface of the print head; and a cleaning member, provided at a print-head side of the head cap in a longitudinal direction of the print head, for cleaning the ink discharge surface of the print head.

control means for controlling the driving of said moving means; wherein, each time a predetermined number of sheets of said recording medium have images formed thereupon following starting of the operations for forming images, the image formation operations are temporarily interrupted, and said moving means are driven under the control of said driving control means, and the peripheral face of said cleaning member is moved over the surface of said ink discharge face while in contact therewith, thereby suctioning the ink within said ink discharge orifices. 2. An image formation apparatus according to claim 1, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that the peripheral face of said cleaning member is relatively moved over the surface of said ink discharge face while in contact therewith in conjunction with the opening action of said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations. 3. An image formation apparatus according to claim 1, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that the peripheral face of said cleaning member is relatively moved over the surface of said ink discharge face while in contact therewith in conjunction with	6. An inkjet head according to claim 1, wherein the cleaning member is formed with a circular cylindrical shape that comes into contact with the entire length of the ink discharge surface of the print head, and is removably held by the head cap.

the closing action of said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations.	

In viewing of the above, the cap, cylindrical cleaning member and their functions are obvious over those in patent ('856). The cleaning of the head by the cleaning member is by a relative movement between the head and the cleaning member, therefore, the opening of the cap (claim 2) and the closing of the cap (claim 3) constitutes such relative movement. The moving means and the driving control means are not explicitly recited in patent ('856), however, the movement of the cap as recited in patent ('856) implies the existence of such means, and the opening/closing of the cap is in a controlled manner.

The difference between the instant application and the patent ('856) is:

after a predetermined number of sheets of said recording medium have images formed thereupon following starting of the operations for forming images, the image formation operations are temporarily interrupted, and said moving means are driven under the control of said driving control means, and the peripheral face of said cleaning member is moved over the surface of said ink discharge face while in contact therewith, thereby suctioning the ink within said ink discharge orifices.

Martinson et al. teach in their fig. 13 a control cleaning scheme, in which, at step 327 is a decision of "Is the page count greater than count threshold?" If "yes", then the process goes to (A), which indicates "Perform print time print head service".

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Nishi et al. (patent '856) to include such control scheme as taught by Nishi et al. for the purpose of a print head service is to be performed after a threshold count of printed paper has been reached. Martinson et al. do not specifically teach what type of service is rendered to the head, however, a wiping service such as the one disclosed by the instant application can be one of the head services taught by Martinson et al.

4. Claims 4-11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3 and 6 of U.S. Patent No. 6,637,856 B2 ('856) in view of Martinson et al. (US Pat. No. 5,793,388). The features of a capping device associated with a cylindrical cleaner used to clean a print head when the capping device opens or closes the head in the instant application are the same as those in patent ('856), and the cleaning is performed after a predetermined amount of papers have been printed is taught by Martinson et al. Following is a table of comparison between claims of the instant application and patent ('856) to show their similarities:

10/618,552	**6,637,856 B2**
4. An image formation apparatus having a print head with an ink discharge face where ink discharge orifices are provided, whereby ink is discharged from said ink discharge orifices so as to	1. An inkjet head comprising: an ink cartridge for holding ink of one color or of a plurality of colors therein; a print head including an ink discharge surface including an ink discharge hole for discharging ink supplied from the

form an image on a recording medium, said image formation apparatus comprising: a cleaning member cylindrically formed of a material having elasticity; moving means for moving both the peripheral face of said cleaning member and the ink discharge face of said print head relative one to another, with both contact one with another; driving control means for controlling the driving of said moving means; and discharge control means for controlling discharge operations of ink from ink discharge orifices on said ink discharge face; wherein, each time a predetermined number of sheets of said recording medium have images formed thereupon following starting the operations for forming images, the image formation operations are temporarily interrupted, and said moving means are driven under the control of said driving control means, and the peripheral face of said cleaning member is moved over the surface of said ink discharge face while contact therewith, thereby suctioning the ink within said ink discharge orifices, and further wherein, following said cleaning member moving over said ink discharge face, under control of said discharge control means, preliminary discharge of ink from said ink discharge orifices is performed. 5. An image formation apparatus according to claim 4, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that the peripheral face of said cleaning	ink cartridge; a head cap, which moves relative to and is removably mounted to the print head, for protecting the ink discharge surface of the print head; and a cleaning member, provided at a print-head side of the head cap in a longitudinal direction of the print head, for cleaning the ink discharge surface of the print head. 3. An inkjet head according to claim 1, wherein the print head preliminarily discharges ink from the ink discharge hole before or after cleaning the ink discharge surface by the cleaning member. 6. An inkjet head according to claim 1, wherein the cleaning member is formed with a circular cylindrical shape that comes into contact with the entire length of the ink discharge surface of the print head, and is removably held by the head cap.

member is relatively moved over the surface said ink discharge face while in contact therewith in conjunction with the opening action said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations. 6. An image formation apparatus according to Claim 4, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that the peripheral face of said cleaning member is relatively moved over the surface of said ink discharge face while in contact therewith in conjunction with the closing action of said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations. 7. An image formation apparatus having a print head with an ink discharge face where ink discharge orifices are provided, whereby ink is discharged from said ink discharge orifices so as to form an image on a recording medium, said image formation apparatus comprising: cleaning member cylindrically formed of a material having elasticity; moving means for moving both the peripheral face of said cleaning member and the discharge face of said print head relative one to another, with both in contact one with another; driving control means for controlling the driving of said moving means; and discharge control means for controlling discharge	

of ink from ink discharge orifices on said ink discharge face; wherein, each time a predetermined number of sheets of said recording medium have images formed thereupon following starting of the operations for forming images, the image formation operations are temporarily interrupted, and discharge operations of ink from ink discharge orifices are performed under control of said discharge control means, whereby preliminary discharge of ink from said ink discharge orifices is performed. 8. An image formation apparatus according to claim 7, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that said cleaning member and said print head are relatively moved in conjunction with the opening action of said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations. 9. An image formation apparatus according to claim 7, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that of said cleaning member and said print head are relatively moved in conjunction with the closing action said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations.	

10. An image formation apparatus having a print head with an ink discharge face where rows of ink discharge orifices for each of a plurality of colors are provided, whereby ink discharged from said ink discharge orifices so as to form an image on a recording medium, said image formation apparatus comprising: a cleaning member cylindrically formed of a material having elasticity; a cap member for storing said cleaning member therein and also protecting said head; cap opening/closing means for opening and closing said cap member, so that the peripheral face said cleaning member and the ink discharge face of said print head are moved relative one to another in a direction orthogonal to the rows of ink discharge orifices for each color, with both in contact one with another, in conjunction with the opening action of said cap member; driving control means for controlling the driving of said cap opening/closing means; and discharge control means for controlling discharge operations of ink from ink discharge orifices on said ink discharge face; wherein, each time a predetermined number of sheets of said recording medium have images formed thereupon following starting of the operations for forming images, the image formation operations are temporarily interrupted, and said cap opening/closing means are driven under the control of said driving control means to temporarily close said cap member and then reopen, and the peripheral face of said cleaning member is moved over the surface of said ink discharge face while in contact therewith, thereby suctioning the ink	

within said ink discharge orifices, and further wherein, following said cleaning member moving over said ink discharge face, under control of said discharge control means, preliminary discharge of ink from said ink discharge orifices is performed in the order of the rows of ink discharge orifices of each color on said ink discharge face which said cleaning member has passed over. 11. An image formation apparatus having a print head with an ink discharge face where rows of ink discharge orifices for each of a plurality of colors are provided, whereby ink is discharged from said ink discharge orifices so as to form an image on a recording medium, said image formation apparatus comprising: a cleaning member cylindrically formed of a material having elasticity; a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head; cap opening/closing means for opening and closing said cap member, so that the peripheral face of said cleaning member and the ink discharge face of said print head are moved relative one to another in a direction orthogonal to the rows of ink discharge in contact one with another, in conjunction with the closing action of said cap member; driving control means for controlling the driving of said cap opening/closing means; and discharge control means for controlling discharge operations of ink from ink discharge orifices on said ink discharge face; wherein, each time a predetermined number of sheets of said recording medium have images formed thereupon following starting the	

operations for forming images, the image formation operations are temporarily interrupted, and said cap opening/closing means are driven under the control of said driving control means to temporarily close said cap member and then reopen, and the peripheral face of said cleaning member is moved over the surface of said ink discharge face while in contact therewith, thereby suctioning the ink within said ink discharge orifices, and further wherein, following said cleaning member moving over said ink discharge face, under control of said discharge control means, preliminary discharge of ink from said ink discharge orifices is performed in the order of the rows of ink discharge orifices of each color on said ink discharge face which said cleaning member has passed over.	

The discussion of the obviousness is the same as that for claims 1-3 discussed above, except the "discharge control means" recited in the instant application. In this respect, claim 3 of patent ('856) teaches preliminary discharge before or after the cleaning job. This preliminary discharge before or after the cleaning job is obvious accomplished by the discharge control means in the instant application.

Claims 10, 11 also recites a "cap opening/closing means", while claims 1 and 2 of patent ('856) teaches the movement of the cap without explicitly teaching such means, therefore such cap movement in claims 1 and 2 of patent ('856) is obviously accomplished by the cap opening/closing means recited in the instant application.

Also in claims 10, 11 regarding to the preliminary discharge of ink from said ink discharge orifices is performed in the order of rows of ink discharge orifices of each color on said ink discharge face which said cleaning member has passed over, this is related to the manner in which the preliminary discharge is performed. Please be advised that "the manner of operating the device does not differentiate apparatus claim from the prior art", please refer to MPEP 2114.

5. Claims 12-14 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 6 of U.S. Patent No. US 6,637,856 B2 ('856) in view of Terasawa et al. (US Pat. No. 4,951,066). The obviousness is the same as discussed above, except, a wiping action was specifically mentioned in these claims. Following is a table of comparison between claims of the instant application and patent ('856) to show their similarities:

10/618,552	**6,637,856 B2**
12. An image formation apparatus having a print head with an ink discharge face where ink discharge orifices are provided, whereby ink is discharged from said ink discharge orifices so as to form an image on a recording medium, said image formation apparatus comprising: cleaning member cylindrically formed of a material having elasticity; moving means for moving both the peripheral face of said cleaning member and the ink discharge face of said print head relative one to another, with both	1. An inkjet head comprising: an ink cartridge for holding ink of one color or of a plurality of colors therein; a print head including an ink discharge surface including an ink discharge hole for discharging ink supplied from the ink cartridge; a head cap, which moves relative to and is removably mounted to the print head, for protecting the ink discharge surface of the print head; and a cleaning member, provided at a print-head side of the head cap in a longitudinal direction of the print head, for cleaning the ink discharge surface

contact one with another; and driving control means for controlling the driving of said moving means; wherein, each time a predetermined amount of time elapses following starting of the operations for forming images on said recording medium, the image formation operations are temporarily interrupted, and said moving means are driven under the control of said driving control means, and the peripheral face of said cleaning member is moved over the surface of said ink discharge face while in contact therewith, thereby suctioning the ink within said ink discharge orifices. 13. An image formation apparatus according to claim 12, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that the peripheral face of said cleaning member is relatively moved over the surface of said ink discharge face of said print head while in contact therewith in conjunction with the opening action of said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations. 14. An image formation apparatus according to claim 12, further comprising a cap member storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that the peripheral face of said cleaning member is relatively	of the print head. 6. An inkjet head according to claim 1, wherein the cleaning member is formed with a circular cylindrical shape that comes into contact with the entire length of the ink discharge surface of the print head, and is removably held by the head cap.

moved over the surface of said ink discharge face of said print head while in contact therewith in conjunction with the closing action of said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations.	

The discussion of obviousness of the instant application over patent ('856) is the same as that for claims 1-3 of the instant application discussed above, except the cleaning action performed after a predetermined time has been elapsed since printing.

In this respect, Terasawa et al. teach in their fig. 9 a wiping control scheme, in which, step S6 is the printing operation, S7 checks to determine whether a predetermined time period has been passed or not, if "yes" process goes to step S8, which is a blade cleaning, refer to col. 8, lines 54 to 65.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to include the wiping control scheme as taught by Terasawa et al. for the purpose of maintaining the proper functioning of the nozzles through a wiping operation after a certain time period has been passed.

The device of Nishi et al. as modified in view of Terasawa et al. DIFFERS from claim 12 in that the cleaning device used in clean the head is in the form of a blade, while a cylindrical roller has been proposed by the instant application.

Therefore it would have been an obvious matter that so long as a cleaning member is provided, whether it is in a blade shape or cylindrical form, they all perform the same cleaning function, i.e., there must be a relative movement occurs between the

cleaning member and the head such that the cleaning member runs over the surface of the head so as to clean the surface of the head. Therefore, Terasawa et al. teach the timing of such head cleaning. As to after such timing a cleaning operation is required, then whether a blade or cylindrical member is to perform the job is a design choice, the end result is the same anyway.

6. Claims 15-17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3 and 6 of U.S. Patent No. 6,637,856 B2 ('856) in view of Terasawa et al. (US Pat. No. 4,951,066). The features of a capping device associated with a cylindrical cleaner used to clean a print head when the capping device opens or closes the head in the instant application are the same as those in patent ('856), and the cleaning is performed after a predetermined time has been elapsed following starting of the printing operation is taught by Terasawa et al. Following is a table of comparison between claims of the instant application and patent ('856) to show their similarities:

10/618,552	**6,637,856 B2**
15. An image formation apparatus having a print head with an ink discharge face where ink discharge orifices are provided, whereby ink is discharged from said ink discharge orifices so as to form an image on a recording medium, said image formation apparatus comprising: a cleaning member cylindrically formed of a material having elasticity; moving	1. An inkjet head comprising: an ink cartridge for holding ink of one color or of a plurality of colors therein; a print head including an ink discharge surface including an ink discharge hole for discharging ink supplied from the ink cartridge; a head cap, which moves relative to and is removably mounted to the print head, for protecting the ink discharge surface of the print head;

means for moving both the peripheral face of said cleaning member and the ink discharge face of the print head relative one to another, with both in contact one with another; driving control means for controlling the driving of said moving means; and discharge control means for controlling discharge operations of ink from ink discharge orifices on said ink discharge face; wherein, each time a predetermined amount time elapses following starting of the operations for forming images on said recording medium, the image formation operations are temporarily interrupted, and said moving means are driven under the control of said driving control means, and the peripheral face of said cleaning member moved over the surface said discharge face while in contact therewith, thereby suctioning the ink within said ink discharge orifices, and further wherein, following said cleaning member moving over said ink discharge face, under control of said discharge control means, preliminary discharge of ink from said ink discharge orifices is performed. 16. An image formation apparatus according to claim 15, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member performed by driving said moving means such that the peripheral face of said cleaning member is relatively moved over the surface of said ink discharge face while in contact therewith in conjunction with the opening action said cap member, and wherein said cap member is temporarily closed and then opened	and a cleaning member, provided at a print-head side of the head cap in a longitudinal direction of the print head, for cleaning the ink discharge surface of the print head. 3. An inkjet head according to claim 1, wherein the print head preliminarily discharges ink from the ink discharge hole before or after cleaning the ink discharge surface by the cleaning member. 6. An inkjet head according to claim 1, wherein the cleaning member is formed with a circular cylindrical shape that comes into contact with the entire length of the ink discharge surface of the print head, and is removably held by the head cap.

again during interruption of said image formation operations. 17. An image formation apparatus according to claim 15, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member performed by driving said moving means such that the peripheral face of said cleaning member is relatively moved over the surface of said ink discharge face while in contact therewith in conjunction with the closing action of said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations.	

The discussion of obviousness of claims 15-17 over patent ('856) is the same as those for claims 4-6 and claims 12-14 discussed above.

7. Claims 18-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3 and 6 of U.S. Patent No. 6,637,856 B2 ('856) in view of Terasawa et al. (US Pat. No. 4,967,204). The features of a capping device associated with a cylindrical cleaner used to clean a print head when the capping device opens or closes the head in the instant application are the same as those in patent ('856), and the cleaning is performed after a predetermined time has been elapsed following starting of the printing operation is taught by Terasawa et al. Following is a table of comparison between claims of the instant application and patent ('856) to show their similarities:

10/618,552	**6,637,856**
18. An image formation apparatus having a print head with an ink discharge face where ink discharge orifices are provided, whereby ink is discharged from said ink discharge orifices so as to form an image on a recording medium, said image formation apparatus comprising: a cleaning member cylindrically formed of a material having elasticity; moving means for moving both the peripheral face of said cleaning member and the ink discharge face of said print head relative one to another, with both in contact one with another; driving control means for controlling the driving of said moving means; and discharge control means for controlling discharge operations of ink from ink discharge orifices on said ink discharge face; wherein, each time a predetermined amount of time elapses following starting of the operations for forming images on said recording medium, the image formation operations are temporarily interrupted, and discharge operations of ink from ink discharge orifices are performed under control of said discharge control means, whereby preliminary discharge of ink from said ink discharge orifices is performed. 19. An image formation apparatus according to claim 18, further comprising a cap member storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that said cleaning member and said print head are relatively	1. An inkjet head comprising: an ink cartridge for holding ink of one color or of a plurality of colors therein; a print head including an ink discharge surface including an ink discharge hole for discharging ink supplied from the ink cartridge; a head cap, which moves relative to and is removably mounted to the print head, for protecting the ink discharge surface of the print head; and a cleaning member, provided at a print-head side of the head cap in a longitudinal direction of the print head, for cleaning the ink discharge surface of the print head. 3. An inkjet head according to claim 1, wherein the print head preliminarily discharges ink from the ink discharge hole before or after cleaning the ink discharge surface by the cleaning member. 6. An inkjet head according to claim 1, wherein the cleaning member is formed with a circular cylindrical shape that comes into contact with the entire length of the ink discharge surface of the print head, and is removably held by the head cap.

moved in conjunction with the opening action of said cap member, and wherein said cap member is temporarily closed and then opened again during interruption said image formation operations. 20. An image formation apparatus according to claim 18, further comprising a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head, wherein opening and closing of said cap member is performed by driving said moving means such that said cleaning member and said print head are relatively moved in conjunction with the closing action of said cap member, and wherein said cap member is temporarily closed and then opened again during interruption of said image formation operations.	

The discussion of obviousness of claims 18-20 over patent ('856) is the same as those for claims 4-6 discussed above.

The difference between claims 18-20 of the instant application and patent ('856) is in that the patent ('856) does not teach:

wherein, each time a predetermined amount of time elapses following starting of the operations for forming images on said recording medium, the image formation operations are temporarily interrupted, and discharge operations of ink from ink discharge orifices are performed under control of said discharge control means, whereby preliminary discharge of ink from said ink discharge orifices is performed.

Terasawa et al. teach in their fig. 4 a control scheme, in which, in step 105 an idle discharge (corresponding to the preliminary discharge in the instant application) into a cap member was performed after a printing period of time T1 has been elapsed.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Nishi et al. to include the idle discharge scheme as taught by Terasawa et al. for the purpose of cleaning the nozzles through the idle discharge into the cap member so as to maintain a healthy nozzle condition.

8. Claims 21, 22 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1,3 and 6 of U.S. Patent No. 6,637,856 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because the features of a capping device associated with a cylindrical cleaner used to clean a print head when the capping device opens or closes the head in the instant application are the same as those in patent ('856). Following is a table of comparison between claims of the instant application and patent ('856) to show their similarities:

10/618,552	**6,637,856 B2**
21. An image formation apparatus having a print head with an ink discharge face where rows of ink discharge orifices for each of a plurality of colors are provided, whereby ink is discharged from said ink discharge	1. An inkjet head comprising: an ink cartridge for holding ink of one color or of a plurality of colors therein; a print head including an ink discharge surface including an ink discharge hole for discharging ink supplied from the

orifices so as to form an image on a recording medium, said image formation apparatus comprising: a cleaning member cylindrically formed of a material having elasticity; a cap member for storing said cleaning member therein and also protecting said ink discharge face of said print head; cap opening/closing means for opening and closing said cap member, so that the peripheral face of said cleaning member and the ink discharge face of said print head are moved relative one to another in a direction orthogonal to the rows of ink discharge orifices for each color, with both in contact one with another in conjunction with opening the action of said cap member; driving control means for controlling the driving of said cap opening/closing means; and discharge control means for controlling discharge operations of ink from ink discharge orifices on said ink discharge face; wherein, each time a predetermined amount of time elapses following starting of the operations for forming images, the image formation operations are temporarily interrupted, and said cap opening/closing means are driven under the control of said driving control means to temporarily close said cap member and then reopen, and the peripheral face of said cleaning member is moved over the surface of said ink discharge face while in contact therewith, thereby suctioning the ink within said ink discharge orifices, and further wherein, following said cleaning member moving over said ink discharge face, under control of said discharge control means, preliminary discharge of ink from said ink discharge orifices is performed in	ink cartridge; a head cap, which moves relative to and is removably mounted to the print head, for protecting the ink discharge surface of the print head; and a cleaning member, provided at a print-head side of the head cap in a longitudinal direction of the print head, for cleaning the ink discharge surface of the print head. 3. An inkjet head according to claim 1, wherein the print head preliminarily discharges ink from the ink discharge hole before or after cleaning the ink discharge surface by the cleaning member. 6. An inkjet head according to claim 1, wherein the cleaning member is formed with a circular cylindrical shape that comes into contact with the entire length of the ink discharge surface of the print head, and is removably held by the head cap.

the order of the rows of ink discharge orifices of each color on said ink discharge face which said cleaning member has passed over. 22. An image formation apparatus having a print head with an ink discharge face where rows of ink discharge orifices for each of a plurality of colors are provided, whereby ink is discharged from said ink discharge orifices so as to form an image on a recording medium, said image formation apparatus comprising: a cleaning member cylindrically formed of a material having elasticity; cap member for storing said cleaning member therein and also protecting said ink discharge face said print head; cap opening/closing means for opening and closing said cap member, so that the peripheral face of said cleaning member and the ink discharge face of said print head are moved relative one another in a direction orthogonal to the rows of ink discharge orifices for each color, with both in contact one with another, in conjunction with the closing action of said cap member; driving control means for controlling the driving of said cap opening/closing means; and discharge control means for controlling discharge operations of ink from ink discharge orifices on said discharge face; wherein, each time a predetermined amount of time elapses following starting of the operations for forming images on said recording medium, the image formation operations are temporarily interrupted, and said cap opening/closing means are driven under the control said driving control means to temporarily close said cap member and then	

reopen, and the peripheral face of said cleaning member is moved over the surface of said ink discharge face while in contact therewith, thereby suctioning the ink within said ink discharge orifices, and further wherein, following said cleaning member moving over said ink discharge face, under control of said discharge control means, preliminary discharge of ink from said ink discharge orifices is performed in the order of the rows of ink discharge orifices of each color on said ink discharge face which said cleaning member has passed over.	

The obviousness of these claims over patent ('856) is the same as that in claims 10 and 11 discussed above.

The closing and opening of the cap after a predetermined time has been elapsed is well known in the art, and that is also the purpose of the existence of the cap in an ink jet printing system. This is also similar to after a certain number of sheets have been printed discussed in claim 12 of the instant application. Because printing a number of sheets requires a certain time period, and this time period is the time elapsed as specified in this claim.

9. Claim 24/5/6/8-11/16/17/19-22 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 6,637,856 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because an ink receptacle (ink receiving section in

patent '856) was disposed in the cap member. Following is a table of comparison between claims of the instant application and patent ('856) to show their similarities:

10/618,552	**6,637,856 B2**
24. An image formation apparatus according to any of claims 5/ 6, 8, 9, 10, 11, 16, 17, 19, 20, 21, and 22, wherein an ink receptacle, for receiving ink discharged from said ink discharge orifices by preliminary discharging, is provided on the inner side of said cap member.	4. An inkjet head according to claim 3, further comprising an ink receiving section, provided at an inner side of the head cap, for receiving the ink preliminarily discharged from the ink discharge hole.

Ink receptacle in the instant application corresponds to the ink receiving section in patent ('856).

10. Claims 25-46 are corresponding method claims, they are not in the proper method claim format as discussed above (refer to claim objection). Nevertheless, all of the steps in the method claims are deemed to be made obvious by the functions of the structure in the combination discussed above. **Beside, in amending this application, all of the method claims are to be presented in the corrected format. (**please refer to application 10/617,285 for method claims).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 23/1-22 and 47/25-46 are rejected under 35 U.S.C. 103(a) as being obvious over Nishi et al.

The applied reference has a common assignee (Sony) with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is

thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2). Both cases deal with a capping member housing a cleaning member.

In regard to:

Claims 23/1-22 and 47/25-46:

An image formation apparatus according to any of claims 1 through 22, wherein said cap member is closed following said image formation operations; and

A control method for an image formation apparatus according to any of Claims 25 through 46, wherein said cap member is closed following said image formation operations.

Rejection:

This claim is rejected on the basis as discussed for any of the claims 1-22 discussed above. Because that is the design purpose of the capping member.

Claim 47/25-46 is the corresponding claim, it is not in the proper method claim format as discussed above (in the claim objection). Nevertheless, all of the steps in the method claims are deemed to be made obvious by the functions of the structure in the combination discussed above. **Beside, in amending this application, all of the method claims are to be presented in the corrected format. (**please refer to application 10/617,285 for method claims).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-wen Hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 7:30AM -5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S D Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SHIH-WEN HSIEH
PRIMARY EXAMINER

S. Hsieh

Shih-wen Hsieh
Primary Examiner
Art Unit 2861

SWH

Nov. 3, 2004